

Amendments to the Claims:

This listing of claims will replace all prior versions and listing of claims in the application.

Listing of Claims:

1-11. (Canceled)

12. (Currently Amended) A network storage virtualization method in a network storage system having a plurality of network storage devices, said method comprising:

allowing a client connected via a network to access the network storage devices as one virtual network storage system; and

permitting said client to access the network storage devices separately from said virtualized network storage system,

wherein a first network storage device includes a first disk interface (I/F) which is connected to an apparatus having a function of forming said network storage devices as one virtual network storage device,

wherein a second network storage device includes a second disk I/F which is connected to said apparatus having a function of forming said network storage devices as one virtual network storage device and a host I/F which is connectable to an external device so as to permit said external device to access the network storage

devices separately from said apparatus having a function of forming said network storage devices as one virtual network storage device,

wherein said external device is permitted to access a secondary volume which is a copy of a primary volume and not permitted to access volumes other than said secondary volume, and

further comprising the step of configuring access control of said secondary volume from outside of said apparatus having a function of forming said network storage devices as one virtual network storage device,

wherein said configuring step comprises the steps of:

creating a mirroring pair between said primary volume and said secondary volume at a certain point in time by taking a complete initial copy of said primary volume and storing said complete initial copy in said secondary volume;

receiving in said second storage device a suspend request;

placing the mirroring pair into a suspend status to permit setting of the access control according to user selection;

if the user chooses a read only mode, setting said secondary volume to the read only mode for input/output (I/O) requests from said external device and re-synchronizing the mirroring pair; and

if the user chooses a read/write mode, setting said secondary volume to the read/write mode for input/output (I/O) requests from said external device and re-synchronizing the mirroring pair.

13. (Original) A network storage virtualization method according to claim 12, wherein when said secondary volume is set to the read only mode access to said secondary volume is performed according to the steps of:

suspending synchronization of the mirroring pair including said primary volume and said secondary volume;

permitting access to data on said secondary volume in response to an I/O request via the host I/F; and

upon completion of said access, re-synchronizing the mirroring pair.

14. (Original) A network storage virtualization method according to claim 12, wherein when said secondary volume is set to the read/write mode access to said secondary volume is performed according to the steps of:

suspending synchronization of the mirroring pair including said primary volume and said secondary volume;

permitting access to data on said secondary volume in response to an I/O request via the host I/F; and

upon completion of said access, re-synchronizing the mirroring pair.

15-25. (Canceled)

26. (Currently Amended) A storage system comprising:

a first network storage device which includes a primary volume;

a second network storage device which includes a secondary volume which is a copied volume of the primary volume and volumes other than the secondary volume; and

a virtualization apparatus, which is connected to each of said first and second network storage devices, and allows a client connected via a network to access the network storage devices as one virtual network storage system, wherein said client is permitted to access the network storage devices separately from said virtualization apparatus,

wherein said first network storage device includes a first disk interface (I/F) which is connected to the virtualization apparatus,

wherein a second network storage device includes a second disk I/F which is connected to said virtualization apparatus and a host I/F which is connectable to an external device so as to permit said external device to access the network storage devices separately from said virtualization apparatus,

wherein said external device is permitted to access said secondary volume which is a copy of said primary volume and not permitted to access said volumes other than said secondary volume,

wherein access control of said secondary volume is configured from outside of said virtualization apparatus, and

wherein said access control of said secondary volume is configured by creating a mirroring pair between said primary volume and said secondary volume at a certain point in time by taking a complete initial copy of said primary volume and storing said complete initial copy in said secondary volume, receiving in said second storage device a suspend request, placing the mirroring pair into a suspend status to permit setting of the access control according to user selection, if the user chooses a read only mode, setting said secondary volume to the read only mode for input/output (I/O) requests from said external device and resynchronizing the mirroring pair, and if the user chooses a read/write mode, setting said secondary volume to the read/write mode for ~~input/output (I/O)~~ requests from said external device and re-synchronizing the mirroring pair.

27. (Original) A storage system according to claim 26, wherein when said secondary volume is set to the read only mode access to said secondary volume is performed by suspending synchronization of the mirroring pair including said primary volume and said secondary volume, permitting access to data on said secondary volume in response to an I/O request via the host I/F, and upon completion of said access, re-synchronizing the mirroring pair.

28. (Currently Amended) A storage system according to claim 26 wherein when said secondary volume is set to the read/write mode access to said secondary

volume is performed by suspending synchronization of the mirroring pair including said primary volume and said secondary volume, permitting access to data on said secondary volume in response to an I/O request via the host I/F, and upon completion of said access, re-synchronizing the mirroring pair.

29. (New) A storage system comprising:

a first network storage device including a primary volume and a first interface (I/F);

a second network storage device including a secondary volume that forms a mirroring pair with said primary volume, said second network storage device including other volumes other than the secondary volume, said second network storage device including a second I/F; and

a virtualization apparatus that is connected to be able to communicate with said first network storage device via said first interface and said second network storage device via said second interface, and that allows a client connected via a network to access the first and second network storage devices as one virtual network storage system;

wherein a computer is connectable to access the network storage devices separately from said virtualization apparatus via a third I/F included in one of said first network storage device or said second network storage device for configuring the network storage devices.

30. (New) A storage system according to claim 29,

wherein said first I/F in said first network storage device is a first disk I/F which is connected for communication with the virtualization apparatus,

wherein said second I/F in said second network storage device is a second disk I/F which is connected for communication with said virtualization apparatus, and

wherein said third I/F is a host I/F which is connectable for communication to the computer so as to permit said computer to access the network storage devices separately from said virtualization apparatus for configuring the network storage devices.

31. (New) A storage system according to claim 30,

wherein said computer is permitted to access said secondary volume which forms the mirroring pair with said primary volume, and not permitted to access said other volumes other than said secondary volume.

32. (New) A storage system according to claim 31,

wherein said computer accesses said secondary volume via said host I/F, said host I/F being included in said second network storage device.

33. (New) A storage system according to claim 32,

wherein a storage area network (SAN) is connected between said computer and said host I/F of said second network storage device.

34. (New) A storage system according to claim 29,

wherein said first I/F in said first network storage device is a disk I/F which is connected for communication with the virtualization apparatus,

wherein said second I/F in said second network storage device is a first host I/F which is connected for communication with said virtualization apparatus, and

wherein said third I/F is a second host I/F included in said second network storage device which is connectable for communication with the computer so as to permit said computer to access the second network storage device separately from said virtualization apparatus for configuring the second network storage device.

35. (New) A storage system according to claim 34,

wherein said computer is permitted to access said secondary volume which forms the mirroring pair with said primary volume, and not permitted to access said other volumes other than said secondary volume.

36. (New) A storage system according to claim 35,

wherein said computer accesses said secondary volume via said second host I/F of said second network storage device.

37. (New) A storage system according to claim 36,

wherein a storage area network (SAN) is connected between said computer and said second host I/F of said second network storage device.

38. (New) A storage system according to claim 36,

wherein a wide storage area network (WSAN) is connected between said virtualization apparatus and said first host I/F of said second network storage device.

39. (New) A storage system according to claim 31,

wherein access control of said secondary volume is configured from outside of said virtualization apparatus via said host I/F.

40. (New) A storage system according to claim 39,

wherein said access control of said secondary volume is configured by:
creating the mirroring pair between said primary volume and said secondary volume at a certain point in time by taking a complete initial copy of said primary volume and storing said complete initial copy in said secondary volume,
receiving in said second storage device a suspend request,
placing the mirroring pair into a suspend status to permit setting of the access control according to user selection,

If the user chooses a read only mode, setting said secondary volume to the read only mode for input/output (I/O) requests from said computer and re-synchronizing the mirroring pair, and

if the user chooses a read/write mode, setting said secondary volume to the read/write mode for I/O requests from said computer and re-synchronizing the mirroring pair.

41. (New) A storage system according to claim 40,

wherein when said secondary volume is set to the read only mode access to said secondary volume is performed by:

suspending synchronization of the mirroring pair including said primary volume and said secondary volume,

permitting access to data on said secondary volume in response to an I/O request via the host I/F, and

upon completion of said access, re-synchronizing the mirroring pair.

42. (New) A storage system according to claim 40,

wherein when said secondary volume is set to the read/write mode access to said secondary volume is performed by:

suspending synchronization of the mirroring pair including said primary volume and said secondary volume,

permitting access to data on said secondary volume in response to an
I/O request via the host I/F, and
upon completion of said access, re-synchronizing the mirroring pair.